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AGRICULTURAL BULLETIN

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BERMUDA DEPARTMENT OF AGRICULTURE
Gordon R. Groves, Director of Agriculture

AGRICULTURAL EXHIBITION

Plans are progressing well for the twenty-sixth Agricultural Exhibition to be held on the 20th, 21st and 22nd April. Confirmation has been received that the judges from abroad invited to take part in the Show will all be able to attend. All of the foreign judges will be coming to Bermuda for the first time. Flowers will be judged by Mr. Roy Nordine of the Morton Arboretum, Lisle, Illinois, and Mr. Roy Forster, of the Horticultural Experiment Station, Vineland, Ontario. Mr. Roy Layton, of the Agricultural Research Station in Kentville, Nova Scotia, will judge the vegetables. Cattle will be judged by Mr. Roy Snyder of the Waterloo Cattle Breeding Association of Waterloo, Ontario. Mr. J. Herman Fraking, of Schenectady, New York, will be coming to judge the poultry, while Mr. Henry Collins, Jr., of Berwyn, Pennsylvania and Bermuda, will judge the horses. Foreign judges will be assisted by local persons who for years have given invaluable help at Exhibition time.

For the first time since 1939 the poultry exhibit will have an international flavour. Plans are underway to have foreign birds compete in the Show under the sponsorship of members of the Bermuda Poultry Fanciers Society. Not only will this international competition result in the displaying of the very best type of bird, but it will also serve to improve the local blood lines of various breeds of poultry, since all the foreign birds will remain in Bermuda after the Exhibition.

Ring events should be very interesting this year. Mr. Harry de Leyer is planning to return to the Colony with several of his best exhibition jumpers. Mr. de Leyer will be remembered for his thrilling displays of riding at last year's Show. Local interest in riding among the children of the Colony is at an all-time high and all of the pony classes will be keenly contested.

Once again let me urge everyone to take an active part in the twenty-sixth Agricultural Exhibition. All of the plans for the Exhibition are based upon the assumption that the public will do their utmost to make the Show a success. We have never been disappointed in the past. This year we want to surpass all previous records.

I. W. H.

THE CITRUS AND POULTRY SHOW, 1961

Another successful citrus and poultry show was held in the Botanical Gardens on the 19th, 20th and 21st January, 1961, under the auspices of the Bermuda Citrus Growers' Association and the Poultry Fanciers' Society. The Bermuda Beekeepers also staged in display of honey and beekeeping equipment.

Many people visited the show during the three days including His Excellency the Governor and Lady Gascoigne.

Despite the rather low quality of the citrus fruit generally, due to the severe rust mite infestation, some remarkably good fruit was on show. In the case of the poultry, the quality and number of birds was well up to average. It was particular gratifying to see the very large class of excellent White Leghorns. Last year this particularly class was poor in numbers. However, the Bermuda Poultry Fanciers have always been keen on the White Leghorn and the breed certainly came back in strength and quality.

As we have said on many occasions, these shows stimulate interest amongst the general public and we are very pleased to see that both organizations have retained their enthusiasm to make this event such a success.

G. R. G.

GARDEN CALENDAR FOR MARCH

Flower Garden:

Regular attention must be given to all beds planted with annual flowers for display in the coming Spring months. The soil must be kept in a friable condition, whereby good aeration and free drainage from the upper surface is achieved. Regular hoeing will ensure this desirable condition. Tall growing annuals will require additional support, in the form of canes or other patented plant ties.

A light application of complete fertilizer, such as 5-10-5, broadcast through the beds and worked into the top soil, just prior to flowering, will also be beneficial. In prolonged periods of dry weather, water will have to be applied to the beds.

As usual care should be given to the control of pests and diseases. A good general spray for flowers consist of Malathion plus Captan. Malathion will control the great majority of insect pests. Being particularly effective against the insects which have sucking mouth-parts such as the aphids, leaf-hoppers, scale insects and so forth. Captan on the other hand is a very good general fungicide and will control most leaf-spots and blights, and also is fairly effective against mildew diseases. If annual plants or other ornamentals show signs of being damaged by leaf chewing insects, such as the caterpillars and some of the beetles, it would be just as well to add DDT or Chlordane to this recommended mixture of Malathion and Captan.

Virus diseases are likely to be troublesome particularly among such plants as Calendulas, Daisies, Marigolds, Asters, Petunias, Phlox and Easter Lilies. Virus diseases are spread primarily by insects and the only way to prevent the spread of these diseases if of course to control the insect vector. The leafhopper and the aphid are two of the major vectors of the virus diseases. A Malathion spray applied regularly will go a long way towards reducing the incidence of virus disease in your garden. Once a virus disease becomes mani-

fest in a plant it is advisable to remove the plant from the garden and destroy it since there is no recovery for an infected plant. Distortion and yellowing of foliage and a generalized drawfing of plants infected with virus diseases makes the recognition of this problem quite easy.

Snapdragons are often attacked by a disease known as rust. This disease is characterised by rusty brown pustules which occur on the foliage of the infected plant. There is not a great deal that can be done to cure the plant once it is infected with rust, but there are on the market now rust resistant varieties of Snapdragons and of course these should be planted whenever possible in preference to the non-resistant varieties. Snapdragons along with Sweet Peas and Larkspur are also attacked by soil inhabiting fungi which cause severe wilting and death of infected plants. Again there is very little that can be done to control this disease causing organism once the symptoms are manifested in the plant. However, if a large proportion of the annual plants in your garden succumb to this wilt then it would be advisable to sterilize the soil in your garden bed before replanting next season.

Rose trees, particularly imported hybrid Teas, may have worked loose in the soil, with the persistent winds experienced over the past few weeks. They must be refirmed where this has occurred and staking may be necessary in some cases.

Poinsettias which persisted in flower until February, and which may still be in flower, should be cut back as soon as possible. This will ensure even, bushy, flowering, next December. **All** soft canes, developed in the past season, should be cut back to mature wood.

Gladiolus may still be planted.

DONALD J. MOORE,
Superintendent,
Bermuda Botanical Gardens.

CITRUS SPRAY PROGRAMME

The 1961 Citrus Spray Programme is now underway. By the time this article appears in press, the first scheduled spray will have been completed. Last year there were great many complaints received at the Department of of Agriculture about the spray programme. There was general disappointment in the control of rust mite and scale insects. We, at the Department, were well aware of the inadequacy of the control of rust mite last year; however, it must be pointed out that there are a great number of difficulties involved in the running of this spray programme and it would perhaps be a good idea to mention briefly, a few of these difficulties.

To be most effective a citrus spray should be applied at the first sign of the pest or disease which the spray is intended to control. This is very important and applies particularly to the rust mite. If a sulphur spray or a spray containing some other agency to control rust mite can be applied to citrus trees when rust mite first begins to show signs of building up then excellent control of rust mite can be achieved. However, if on the other hand, the spray is three or four weeks late and rust mite has already had opportunity to damage the fruit and the leaves, then the application of the spray simply reduces the number of rust mites but cannot remove the injury which has already being caused and which is characterized by rusting of fruit and foliage. This same principle

applies to all the other pests, and also to the diseases, of citrus. If the Department of Agriculture had but one or two orchards to look after it would not be difficult to give a guarantee that fruit could be kept clean. But at the present time it takes the two spray trucks that we have at our disposal some four to six weeks to cover the entire Islands with a single spray. This means that while a person in Pembroke might have spray applied to his citrus trees at the optimum time, a person living in Somerset or St. George's will not get that spray for perhaps a month or more. By this time the rust mite or some other insect might well have caused a great deal of damage.

A second factor which complicates the spray programme is that of weather. Assuming that the weather remains fine throughout the year it is possible, as was mentioned above, to cover all of the citrus orchards in the Islands in approximately four to six weeks. However, when wet, windy weather is encountered, spraying naturally falls behind. During the Fall of 1960, there was an exceptional high rainfall; more than thirty inches of rain fell during the months of September to December, inclusive. During this period of 122 days, rain fell on 71 days. It is easy to see, then, how weather such as this can put the spray schedule behind. In addition to delaying the application of sprays the rain often washed the spray material from the trees in a matter of hours after it was applied, naturally nullifying any beneficial effect the spray might have had.

The question is, what can be done to improve the spray programme? Nothing can be done to reduce the number of trees planted since this number is increasing rather than decreasing. This means that we must either get more equipment or accept the fact that it is going to take six weeks to cover all of the citrus trees in the Islands. The recent acquisition of a new spray truck will undoubtedly help here. We now have three sprayers which can be used and this is bound to help somewhat.

We have decided to use a new miticide called Zineb this year. This is an organic material which has proven very effective in the control of rust mite in Florida. Zineb will be used in place of sulphur and has the added advantage of being able to be mixed with oil. Sulphur of course, cannot be used with, or immediately before or after, an oil spray.

There is nothing anyone can do about weather of course, so we will just have to do the best we can during the coming year, regardless what the weather may bring. While it is impossible for us to guarantee that the spray programme planned for 1961 will result in clean fruit, we are naturally hoping that the modifications which have been made in the schedule will result in high quality fruit for all those who take advantage of the spray service offered by the Department of Agriculture.

I. W. HUGHES,
Assistant Director of Agriculture.

ON THE FARMS

The Spring potato crops have now been planted and many fields are already showing good top growth. It is estimated that some two thousand barrels

of seed have been planted and assuming a yield of five to one, which is certainly not unusual, for the Spring crop, we should have some thirty thousand barrels of table potatoes from May onwards. Of this number approximately two-thirds will be handled by the Marketing Centre the remainder being sold through other channels. Farmers are reminded that a spray programme should be carefully followed during the Spring since late blight can be particularly damaging on potatoes at this season. Sprays should be applied as a protection for the crops rather than a control of blight as it is very difficult to check late blight once it has become established in a field. A spray applied every two weeks will be very worthwhile.

Green vegetables are going to be in short supply during March. Cauliflower, Cabbage and Broccoli will not be available in any quantity until the middle of April. Carrots and Beans should be more plentiful but Tomatoes will not be available in constant supply. Spring bunched onions are already appearing on the market and from this month onwards will be plentiful. The cucurbits, such as Squash, Pumpkin, Cantaloupe and Melons have been planted for the past month or so, and will continue to be planted until April. Sweet Corn will not be available on the market until at least the middle of April. With this crop it is advisable to plant small quantities in succession rather than a lot at one time — this will make the marketing of the crop much more simple.

A few Strawberries have been seen on the local market but farmers have complained that much of the early fruit has been damaged by ground insects and other soil pests. Care should be taken when applying fertilizer to Strawberries to avoid excessive applications; not only will the fertilizer tend to burn or damage the fruit but excessive amounts of fertilizer on the ground attract small flies, known as fruit flies, the larvae of which will often damage the fruit.

Local Grapefruit is still plentiful but local Lemons and Oranges are almost impossible to obtain now. There is the usual scarcity of Bananas at this time of year. Banana plantings are diminishing and this difficulty of meeting the local demand for Bananas appears to be getting more acute.

Growers should be giving serious consideration to their entries in the vegetable class in the Exhibition. Now is the time to select, and mark for particular attention young vegetables which show obvious quality. The judge coming to handle the vegetable class this year is Mr. Roy Layton of Nova Scotia, Canada. Mr. Layton is in charge of the potato seed inspection service in Nova Scotia and is well known to us at the Department and also to many seed potato importers. Mr. Layton has had a personal interest in seed potatoes shipped to Bermuda for a great many years since he invariably inspects the fields from which these tubers come. It is particularly nice, then, to look forward to seeing Mr. Layton in the Colony, for not only will he have an opportunity to judge the vegetables at our Exhibition but he will also have the chance to see growing some of the potatoes which originated in Canada in his inspection area.

I. W. HUGHES,
Assistant Director of Agriculture.

CARLISLE HOLLIS,
Agricultural Officer.

CARE OF FRESHLY PLANTED YOUNG CITRUS TREES

At this time of the year we are busily engaged in the lifting and distribution of young citrus trees from the nursery. Many of you will have already planted your trees. Others will be receiving them within the very near future.

We have a published instruction sheet which is available to all persons ordering trees from this Department. This publication clearly outlines the initial planting and cultivation instructions, covering all varieties of citrus trees. In it we deal with pruning, choice of site, planting preparation, planting and watering. However, one cannot hope to cover the whole wide field of citrus culture in a single sheet. Frequently we are asked questions not dealt with in our publication.

Through the medium of this article I hope to briefly deal with some of the more common problems.

CHOICE OF SITE: It is useless to attempt to plant citrus unless complete protection can be afforded against wind and salt spray. The soil must also be of good fertility, deep and friable.

We have emphasized these points many times before, but make no apologies for printing them again. Unless these conditions can be met in full then there is little point in attempting to grow citrus. They require the BEST cultivation possible. If you cannot meet these conditions, then please wait until you are in a position to do so before ordering trees from us.

PEST CONTROL: A leading question often put to us is "Do I need to spray my trees against pests, and if so, how often?" The direct answer to that question is, of course, YES. All living plants are subject to attack from the very commencement of their life cycle.

However, the young tree will not need to be covered by such a comprehensive spray schedule, as will its older counterpart. Until such times as actual cropping commences many of the pests which specifically attack the fruit will not provide any problem, the Mediterranean Fruit Fly providing a good example of this.

The principal pest attacking young trees is the Aphid, or as it is sometimes known, "Green" or "Black Fly". This pest attacks the fresh young growth of the tree. By sucking at the sap of the leaf, a breakdown in the cell structure takes place. This is followed by severe and crippling damage to the leaf, and frequently a complete "blinding" of the growing point itself. A familiar sight is that of the young leaves completely curled up and crinkled. This damage is caused by Aphids. Unfortunately by the time these symptoms are observed it is too late to rectify matters. The leaf curl is the actual after-effect of Aphid infestation and the leaf is permanently crippled.

Fortunately control of this pest is a simple one, providing it is carried out regularly and thoroughly. Spraying with Malathion or Nicotine sulphate at 1 pint per 100 gallons of water, or 1 teaspoonful per gallon will give good control. Spraying every three weeks or even every ten days, if possible, is to be advised when young shoots are present.

The only other serious pests likely to cause trouble are scale insects. These may be controlled with Oil Emulsion, used at the rate of 6 - 7 tablespoonfuls per gallon. This may be applied with the Malathion used to control the Aphids.

The Department has a spraying service but does not accept requests to spray citrus trees which are less than 2 years old (from the time of transplanting). Pest control on the newly set-out citrus is most economically and efficiently carried out by the owner.

PRUNING: All growth which develops below the bud union should be removed.

This is Rough Lemon growth and if left may cause the complete decline of the budded variety and an eventual reversion to Rough Lemon.

Water shoots must also be removed, for they merely detract from the general vigour of the tree and will not bear fruit. They can be easily be determined from normal growth by their rank green heavily thorned character. They usually develop on the main trunk and later on large branches.

All dead wood should be removed, for it provides an easy entry for pests and diseases.

INITIAL FERTILIZING: If the soil is in good physical condition at the time of planting it is not really necessary to add fertilizers, particularly inorganic types at that time.

Well-rotted compost, peat-moss, etc., may be placed in the hole at the time of planting, however. This will do much to improve the water-retentive quality of the soil during times of drought. It is advisable to keep this material away from the root system of the tree for fear of "burning" of the tender young root hairs. These root hairs, which are almost microscopic, are as important to the root system as are main roots. The root system should be allowed to rest upon a good pocket of soil.

FERTILIZATION SCHEDULE: During the first two years after the young tree is planted a balanced citrus fertilizer should be applied at the rate of ½ lb. per tree every three months. Supplementary applications of iron sequestrene (or any other related iron compound suitable for use on basic soils) should be applied if an iron deficiency is apparent.

DONALD J. MOORE,
Superintendent,
Bermuda Botanical Gardens.

DISPLAY AT R.H.S. SHOW WINS AWARD

News was received from Mr. Gordon Groves, Director of Agriculture, who travelled to England to receive an Associateship of Honour from the Royal Horticultural Society, that a display of citrus fruits and Bermuda flowers staged at the bi-weekly R.H.S. Show won an important award, the Silver Gilt Lindley Medal.

The exhibit included a wide variety of locally grown citrus, much of which was donated by the citrus growers ofBermuda. Easter Lilies and Bird of Paradise were also featured, with foliage from a variety of trees and shrubs serving as a decorative base. Staging of the Exhibit was carried out by the Director,

with the help of the Plant Pathologist, Mr. E. A. Manuel, who is currently studying in England.

Certainly, the success of the Exhibit must have made a memorable occasion even more satisfying for the Director of Agriculture.

I. W. H.

ARTIFICIAL INSEMINATION NEWS

Semen supplies arrived from Canada on Monday, 27th February. The names of the bulls are listed below with the number of vials of semen from each:

80 U.N.H. Schoolmate;
120 Marshline Raven Ranger;
110 Comfort Farms Traveler;
28 Round Bush Final Command;
22 Brampton Sixth Generation, and
250 Maplenix Reg Apple Mercury;
90 Fraserdale Heir;
22 Selwood Gaiety;
28 Stonehall Advent;
50 A.B.C. Prince Sovereign R.

This represents by breed — 500 Holstein, 200 Guernsey, 50 Ayrshire, 50 Jersey, 50 beef shorthorn.

As we stated at the meeting recently, although the semen is here and we are technically ready to commence full scale operations, we are not anxious to do so immediately. The main reason for such an approach is to give us time to check the refrigerator cabinets and the ability of the semen to withstand our handling process.

An announcement will be made in the near future, when we feel that we can confidently offer a continuous service to every livestock owner.

WEATHER RECORDING STATION AT BOTANICAL GARDENS

Summary of Climatogical data obtained at the Botanical Gardens during February, 1961

Mean Maximum temperature 67.6
Mean Minimum temperature 57.3
Mean monthly temperature 62.4
absolute maximum 73.1 on February 24th
absolute minimum 47.2 on February 7th
Rainfall ~~21.8~~ 2·18 inches
No. of rain days 14